Applicant: Tseng et al.
Application No.: 10/758,628

<u>**Amendments to the Claims:**</u>

1. (Original) A ferroelectric memory structure, comprising:

a substrate;

an insulating layer formed on said substrate;

a plurality of oxide electrodes formed on said insulating layer;

a ferroelectric layer formed on said insulating layer and said plurality of oxide electrodes; and

a plurality of metallic electrodes formed on said ferroelectric layer and corresponding to said plurality of said oxide electrodes.

2. (Original) The ferroelectric memory structure according to claim 1, wherein said substrate is a silicon substrate.

3. (Original) The ferroelectric memory structure according to claim 2, wherein said silicon substrate is a p-type silicon substrate.

4. (Original) The ferroelectric memory structure according to claim 2, wherein said silicon substrate is a n-type silicon substrate.

5. (Original) The ferroelectric memory structure according to claim 1, wherein said insulating layer is made of $Ba_xSr_{1-x}TiO_3$, wherein the x is in a range between 0.3 and 1.

6. (Original) The ferroelectric memory structure according to claim 5, wherein said insulating layer is doped by MgO.

7. (Original) The ferroelectric memory structure according to claim 1, wherein said plurality of oxide electrodes are made of $LaNiO_3$.

8. (Original) The ferroelectric memory structure according to claim 1, wherein said ferroelectric layer is made of $Bi_xLa_{4-x}Ti_3O_{12}$, wherein x is in a range between 0 and 1.

9. (Original) The ferroelectric memory structure according to claim 1, wherein said plurality of metallic electrodes are made of one of noble metals selected from a group consisting of Pt, Ru and Ir, and an oxide electrode containing a perovskite structure and comprising one selected a group consisting of $LaNiO_3$, $SrRuO_3$, $BaRuO_3$ and $YBa_2Cu_3O_7$.

10. (Original) The ferroelectric memory structure according to claim 1, wherein said plurality of metallic electrodes respectively have a first electrode area, and said plurality of oxide electrodes respectively have a second electrode area, wherein a ratio of said first electrode area to said second electrode area is less than 1/12.

11. (Withdrawn) A method for fabricating a ferroelectric memory structure, comprising steps of:

(a) providing a substrate;

(b) forming an insulating layer on said substrate;

(c) forming a plurality of oxide electrodes on said insulting layer;

(d) forming a ferroelectric layer on said insulating layer and said plurality of oxide electrodes; and

(e) forming a plurality of metallic electrodes on said ferroelectric layer corresponding to said plurality of oxide electrodes.

12. (Withdrawn) The method according to claim 11, wherein said substrate is a silicon substrate.

13. (Withdrawn) The method according to claim 12, wherein said silicon substrate is a p-type silicon substrate.

14. (Withdrawn) The method according to claim 12, wherein said silicon substrate is a n-type silicon substrate.

15. (Withdrawn) The method according to claim 11, wherein step (a) further comprises pretreating said substrate in turn with an RCA cleaning and a nitrogenization method.

16. (Withdrawn) The method according to claim 11, wherein said insulating layer is formed by a chemical vapor deposition.

17. (Withdrawn) The method according to claim 11, wherein said insulating layer is formed by a metal-organic deposition.

18. (Withdrawn) The method according to claim 1 1, wherein said insulating layer is formed by a physical vapor deposition.

19. (Withdrawn) The method according to claim 18, wherein said physical vapor deposition further employs a first sputtering target.

20. (Withdrawn) The method according to claim 19, wherein said first sputtering target is made of $Ba_xSr_{1-x}TiO_3$, wherein said x is in a range between 0.3 and 1.

21. (Withdrawn) The method according to claim 20, wherein said $Ba_xSr_{1-x}TiO_3$ sputtering target is formed by mixing and calcining $BaCO_3$, $SrCO_3$ and TiO_2.

22. (Withdrawn) The method according to claim 21, wherein said first sputtering target is further doped with MgO.

23. (Withdrawn) The method according to claim 11, wherein step (c) further comprises a step of forming an oxide layer on said insulating layer and performing a lithography process on said oxide layer to form said plurality of oxide electrodes.

24. (Withdrawn) The method according to claim 23, wherein said oxide layer is formed by a chemical vapor deposition.

25. (Withdrawn) The method according to claim 23, wherein said oxide layer is formed by a metal-organic deposition.

26. (Withdrawn) The method according to claim 23, wherein said oxide layer is formed by a physical vapor deposition.

27. (Withdrawn) The method according to claim 26, wherein said physical vapor deposition further employs a second sputtering target.

28. (Withdrawn) The method according to claim 27, wherein said second sputtering target is made of $LaNiO_3$.

29. (Withdrawn) The method according to claim 28, wherein said $LaNiO_3$ sputtering target is formed by mixing and calcining La_2O_3 and NiO_2.

30. (Withdrawn) The method according to claim 11, wherein said ferroelectric layer is formed by a physical vapor deposition.

31. (Withdrawn) The method according to claim 1 1, wherein said ferroelectric layer is formed by a chemical vapor deposition.

32. (Withdrawn) The method according to claim 1 1, wherein said ferroelectric layer is formed by a metal-organic deposition.

33. (Withdrawn) The method according to claim 32, wherein said metal-organic deposition is performed through a solution.

34. (Withdrawn) The method according to claim 33, wherein said solution is a $Bi_xLa_{4-x}Ti_3O_{12}$ solution, wherein said x in a range between 0 and 4.

35. (Withdrawn) The method according to claim 34, wherein said solution comprises acetic acid to be served as a solvent, and comprises lanthanum acetate, bismuth acetate and tetra(isopropyl)-titanate to be served as solutes.

36. (Withdrawn) The method according to claim 11, wherein step (e) further comprises a step of forming a metallic layer on said ferroelectric layer, and performing a lift-off process on said metallic layer to form said plurality of metallic electrodes, wherein said plurality of metallic electrodes respectively have a frst electrode area, said plurality of oxide electrodes respectively have a second electrode area, and a ratio of said first electrode area to said second electrode area is less than 1/12.

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37. (Withdrawn) The method according to claim 1, wherein said plurality of metallic electrodes are made of one of noble metals selected from a group consisting of Pt, Ru and Ir, and an oxide electrode containing a perovskite structure and comprising one selected a group consisting of $LaNiO_3$, $SrRuO_3$, $BaRuO_3$ and $YBa_2Cu_3O_7$.